

## NOTES ON THE LARVÆ OF THE HESPERIIDÆ.

The larvæ of the North American Hesperiidæ have been much neglected, yet they offer a very interesting field for study. Of the foregoing species, only about forty have any larval observations published. Mr. W. H. Edwards, who has made known the life histories of so many North American butterflies, never seriously undertook the study of those of the Hesperiidæ, to our great loss.

The larvæ possess primitive setæ in the first stage with the generalized arrangement (Trans. N. Y. Acad. Sci., xiv, 52, fig. 3, 1895). After the first molt these are replaced by a coat of fine secondary pile. The neck is almost always small, the body is thickened centrally and tapers to the extremities. The feet are of the normal number.

After the first molt, when the primitive first stage is lost, there is usually very little change in the larva in structure or coloration, except the usual development of the markings. But one instance is known to me of marked change at the last molt, that of *batabano*. In this insect the larva is transformed at the last ecdysis from a smooth wine-red with bright yellow bands, to frosted white pitted by the non-pruinose areas about the setæ.

The relationships to the other families have been briefly stated by me (Ann. N. Y. Acad. Sci., viii, 231, 1894; Trans. N. Y. Acad. Sci., xiv, 61, note, 1895).

The food plants of the species are not as diversified as usual, grass and allied plants forming the food of many of the Pamphilinæ. The other groups feed on more various plants. None of the species known to me are general feeders or have any approach to such a habit; *tityrus* feeds on several plants, but they all belong to the pea family.

The larvæ almost invariably construct some shelter by spinning together leaves or parts of them into a box-shaped retreat. This is usually the first business of the newly hatched larva and the notches with the bitten part folded over formed in the edges of bean leaves by *proteus* or *tityrus* are characteristic of many other species. The larvæ of *Megathymus* are borers in the roots of *Yucca*, which habit has even caused some to think them allied to the Castniidæ, although the larvæ themselves really have no affinity therewith.

We hope that more study will be devoted to these larvæ in the future.